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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,885	03/31/2004	Imad Fattouch	886-011750-US (PAR)	9069

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EXAMINER	
HERRERA, DIEGO D	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/815,885	FATTOUCH ET AL.	
	Examiner	Art Unit	
	Diego Herrera	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/31/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "**The disclosure defined by this invention**," "The disclosure describes," etc.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soliman et al. (US patent 6111857), and in view of Kilfoyle (US publication 20020093926 A1).

Regarding claim 1. Soliman et al. discloses process for calculation and display (fig. 1 element 100, col. 5 lines: 13-14; fig. 3, Soliman teaches a display) of mutual interference in the down direction generated in a cellular

radiotelephony network (fig. 3, Soliman et al. teaches areas selected and showed to increase quality of communication as well as increased the complexity of the network) with a CDMA type access (col. 1 lines: 40-45, Soliman et al. teaches wide-band communication scheme), used with a computer system (1) (fig. 1, Soliman et al. teaches a computer) comprising memory means (2) (fig. 2 elements 208, 206, Soliman et al. teaches memory means) for storing data representative of network coverage maps (CN) in particular, display means (fig. 1 element 100, Soliman teaches display), selection means (34) for selecting network cells by interactive interface means (3) (fig. 3, element 322 selection, element 320, area map) and a calculation module (11) (fig. 9, Soliman et al. teaches elements 908, 910, 906, have calculations made, hence, calculation module inherently in the computer), characterized in that it comprises:

- a step (50) to select a representation of a working area (6) derived from map data (CN) and covered by a set of cells, using interactive means (3) on a display device (fig. 1 and fig. 3, col. 6 lines: 35-38),
- a step (51) to select cells in a subset of cells (61) considered to be interfering, or a subset of cells (62) considered as being interfered, among any of the cells in the set covering the working area (6) represented using selection means (34) on display means (fig. 11, col. 14 lines: 4-8, Soliman et al. teaches the use of “sensitivity calculation” which calculates for interference in the network),

- a Step (52, 52') for input of threshold levels for signal / interference ratios and at least one parameter related to the power of the interfering cells (61), a parameter for a traffic channel to be studied and a parameter for a contour delimiting a calculation area in the working area (6), using the configuration means (33) (fig. 10-14, col. 13-17, Soliman et al. teaches and explains in detail the equations and method used to calculate parameters of power interfering cells),
- a step (53) in which the calculation module (ii) determines the geographic area served by the subset of interfered cells (61) called the service area (63) and representing this service area (63) (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer),
- a step (54) in which the calculation module estimates the overlap of each of the interfering cells (61) with the service area (63) to define and memorize an overlap area in the memory means (2) (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer),
- a step (55) in which the calculation module (11) calculates the received field level from the interfering cell (61), or the received field level from the interfered cell (62) serving the pixel considered, at each point or pixel in the overlap area (64) (fig. 8, col. 3 lines: 33-37, col. 10 lines: 26-28, Soliman et al. teaches service signal vectors, hence, identifying area of interest whether it be interfering cells or delimiting areas),

- a step (55') in which the calculation module (11) calculates the interfering field which is the sum of the received fields from all interfering cells (61), at each point or pixel in the overlap area (64) (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer);

  the calculation mode calculating the value $I_{0\,near}$ of the interference field created by each interfering cell for the calculation of a matrix and the sum of fields created by all interfering cells, starting from attenuation data and cell power defined as a parameter, for each pixel in the overlap area (fig. 10-14, col. 13-17, Soliman et al. teaches and explains in detail the equations and method used to calculate parameters of power interfering cells).
- However, Soliman et al. does not specifically discloses the W-CDMA, nevertheless, Kilfoyle teaches the system of W-CDMA (paragraphs [0039]-[0040], Kilfoyle teaches W-CDMA system for a remote downlink transmission to increase the capacity of a network).
- Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention of Soliman et al. was made to specifically include a W-CDMA as taught by Kilfoyle for the purposes of making service available to the terminal in multiple systems.

Regarding claim 14. Soliman et al. discloses computer system (1) (fig. 1, Soliman et al. teaches a computer) for calculation and display (fig. 1

element 100, col. 5 lines: 13-14; fig. 3, Soliman teaches a display) of mutual interference in the down direction generated in a cellular radiotelephony network (fig. 3, Soliman et al. teaches areas selected and showed to increase quality of communication as well as increased the complexity of the network) with a CDMA type access for implementation of the process according to claim 1 (col. 1 lines: 40-45, Soliman et al. teaches wide-band communication scheme), comprising memory means (2) (fig. 2 elements 208, 206, Soliman et al. teaches memory means), a calculation module (11) (fig. 1, Soliman et al. teaches a computer) and selection means (12) (fig. 3, element 322 selection, element 320, area map), the said memory means (2) comprising data representative of geographic maps (CN) (fig. 9, Soliman et al. teaches elements 908, 910, 906, have calculations made, hence, calculation module inherently in the computer), broken down into a plurality of points or pixels depending on the breakdown of the said network in a first memory (21), and data representative of a radio coverage related to the network in a second memory (22) (fig. 9, Soliman et al. teaches elements 908, 910, 906, have calculations made, hence, calculation module inherently in the computer), the said system (1) being characterized in that it comprises:

- interactive interface means (3) between the user and the said system (1), connected to the selection means (fig. 8, col. 3 lines: 33-37, col. 10 lines: 26-28, Soliman et al. teaches service signal vectors, hence, identifying area of interest whether it be interfering cells or delimiting areas) (12) for

selecting and displaying at least one working area (6) derived from map data (CN) and covered by a set of radio coverage cells arranged according to a layout (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer) defined by the data in the second memory (22) (fig. 2 elements 208, 206, Soliman et al. teaches memory means),

- configuration means (33, 34) selected by interactive means (3) to memorize a first sub-set of cells (61) to be considered as being interfering and a second sub-set of cells (62) (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer) to be considered as being interfered (fig. 2 elements 208, 206, Soliman et al. teaches memory means), in a configuration file (25) for the system (1) starting from any cells in the assembly covering the working area (6), the configuration means (33) enabling firstly the definition of threshold levels for signal/interference ratios and parameters related to the power of interfering cells (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer) (61), the traffic channel to be studied and the contour delimiting a calculation area in the working area (6), and also the memorization of these data in a configuration file (25), the calculation module (11) comprising means of determining the service area (63) served by the sub-set of the interfered cells (62) (fig. 8, col. 3 lines: 33-37, col. 10 lines: 26-28, Soliman et al. teaches service

signal vectors, hence, identifying area of interest whether it be interfering cells or delimiting areas), means of estimating the overlap of each interfering cell (61) with the service area (63) to define and memorize an overlap area (64) in a memory (23) (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer) in memorization means (2) (fig. 2 elements 208, 206, Soliman et al. teaches memory means), and means of calculating the attenuation of the interfering cell (61), and attenuation of the serving interfered cell (62) for the pixel considered, for each point or pixel in the overlap area (64) (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer; hence, resolution and pixel areas, furthermore, network planning tool considers SNR of specific area chosen and calculations are made upon report of thresholds).

- However, Soliman et al. does not specifically discloses the W-CDMA, nevertheless, Kilfoyle teaches the system of W-CDMA (paragraphs [0039]-[0040], Kilfoyle teaches W-CDMA system for a remote downlink transmission to increase the capacity of a network).
- Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention of Soliman et al. was made to specifically include a W-CDMA as taught by Kilfoyle for the purposes of making service available to the terminal in multiple systems.

consider claim 2. Process according to claim 1, in which a step (56) for estimating a value representing the signal/interference ratio is done for each pixel, starting from field levels and parameters (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer, hence, resolution and pixel areas, furthermore, network planning tool considers SNR of specific area chosen and calculations are made upon report of thresholds).

consider claim 3. Process according to claim 1, in which parameters related to the traffic channel comprise the flow in the channel, a target signal/interference ratio, and an average power per channel (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer, hence, resolution and pixel areas, power consumption, furthermore, network planning tool considers SNR of specific area chosen and calculations are made upon report of thresholds).

consider claim 4. Process according to claim 1, in which the power of the interfering cells (61) is defined by parameters for the case with maximum interference, when the interfering cells are served by a node B (4) in the network emitting at full power (col. 12, lines: 38-44, Soliman et al. teaches the energy per bit to the total noise power measures the required received

power from a subscriber to a base station).

consider claim 5. Process according to claim 1, in which the power of the interfering cells (61) is defined by parameters for the minimum interference case, with an emission limited to the common pilot channel CPICH of base stations in the network (col. 12 lines: 50-67, equations shown by Soliman et al. teaching base station noise figure, and sensitivity of sectors).

consider claim 6. Process according to claim 1, in which the threshold levels for signal/interference ratios are functions of geomarketing data representative of a required quality of service, memorized in a memory (24) of the computer system (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer, hence, resolution and pixel areas, furthermore, network planning tool considers SNR of specific area chosen and calculations are made upon report of thresholds).

consider claim 7. Process according to claim 2, in which an interference matrix (31) is formed by an integration operation over the entire overlap area (64) of all results obtained for each pixel of the overlap area (64), the calculation module (11) determining the global interference ratio Tbi/j of each serving interfered cell (62) by interfering cells (61) (fig. 3, Soliman et al. teaches areas selected and showed to increase quality of

communication as well as increased the complexity of the network).

consider claim 8. Process according to claim 1, in which the Eb/N_0 ratio of the average power of the signal to the average spectral density of the noise is calculated at each pixel in the overlap area (64) by the calculation module (11) (fig. 1 element 100, col. 5 lines: 13-14; fig. 3, Soliman teaches a display) using the following formula:

$Eb/N_0 = Ec/I_0$ + spread gain,

where I_0 is the total value of the interference field, and where $I_0 = \Sigma\ I_{0\ near}$ + thermal noise $+I_{0\ serving}$, Ec is the value of the average power of the signal from the serving cell for the pixel, $I_{0\ serving}$ is the value of the interference field of the serving cell and the spread gain corresponds to the throughput value of the channel chosen as a parameter, the values for Ec and $I_{0\ serving}$ previously being determined by the calculation module (ii) from attenuation data and the power fixed as a parameter for this cell (fig. 8, col. 3 lines: 33-37, col. 10 lines: 26-28, Soliman et al. teaches service signal vectors, hence, identifying area of interest whether it be interfering cells or delimiting areas).

consider claim 9. Process according to claim 7 in which the comparison means enable the calculation module (11) to select at least three interfering cells (61) forming the cells introducing the greatest disturbance in comparison with values of the interfering matrix (31) (fig. 3 col. 6 lines:

20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer) (fig. 2 elements 208, 206, Soliman et al. teaches memory means) (fig. 8, col. 3 lines: 33-37, col. 10 lines: 26-28, Soliman et al. teaches service signal vectors, hence, identifying area of interest whether it be interfering cells or delimiting areas).

consider claim 10. Process according to claim 8, in which a step for the display of the value of the Eb/N0 ratio of the average power of the signal to the average spectral density of the noise is made for each pixel, for interfered cells (62) in the overlap area (64) using interactive interface means (3), the disturbance sub-areas (60) being identified by the use of a specific graphic representation for pixels of a serving interfered cell (62) (fig. 8, col. 3 lines: 33-37, col. 10 lines: 26-28, Soliman et al. teaches service signal vectors, hence, identifying area of interest whether it be interfering cells or delimiting areas) for which the Eb/N0 ratio is less than a threshold signal/interference ratio threshold defined as a parameter for the serving interfered cell (62) (fig. 3, Soliman et al. teaches areas selected and showed to increase quality of communication as well as increased the complexity of the network).

consider claim 11. Process according to claim 8, in which the calculation module (ii) determines the Eb/N_0 or the Ec/I_0 ratio at each pixel in the

overlap area (64), this ratio being compared at each pixel in the service area (63) with a threshold indicated as a parameter so as to calculate a value representative of the excess power of the interfering cell (61) for each interfering cell (61) serving interfered cell (62) pair, this value being entered in a matrix (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer) (fig. 2 elements 208, 206, Soliman et al. teaches memory means).

consider claim 12. Process according to claim 8, in which the calculation module (11) determines the Eb/N_0 or Ec/I_0 ratio at each pixel in the overlap area (64), this ratio being compared at each pixel in the service area (63) with a threshold indicated as a parameter so as to calculate a value representative of the disturbance within the interfered cell (61), for each interfered cell (61), the value of I_0 being equal to the sum of interference generated by interfering cells (fig. 3, Soliman et al. teaches areas selected and showed to increase quality of communication as well as increased the complexity of the network).

consider claim 13. Process according to claim 9, in which the result of the calculated disturbance is used to make a check of the power for at least the most disturbing cell, by modification of the radiation diagram of an adaptive antenna of the cell, to increase the signal/interference ratio in this

cell (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer, hence, resolution and pixel areas, furthermore, network planning tool considers SNR of specific area chosen and calculations are made upon report of thresholds).

consider claim 15. System according to claim 14, in which the calculation module (11) is connected to means (13) for extraction of data from the configuration file (25) and data representative of attenuations stored in a third memory (26) of the memorization means (2) (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer) (fig. 2 elements 208, 206, Soliman et al. teaches memory means), the calculation module (11) determining a value representative of the signal/interference ratio at each pixel in the overlap area (64), starting from attenuations stored in the third memory (26) and parameters of the configuration file (25) (fig. 8, col. 3 lines: 33-37, col. 10 lines: 26-28, Soliman et al. teaches service signal vectors, hence, identifying area of interest whether it be interfering cells or delimiting areas).

Consider claim 16. System according to claim 14 in which the interactive interface means (3) comprise means of displaying the value representative of the signal/interference ratio Eb/N_0, the average power of

the signal to the average noise spectral density, and means of representing the disturbance represented by specific pixels for which the Eb/N_0 ratio is less than a threshold ratio of the signal/interference ratio input as a parameter for the serving interfered

- cell (62) for each serving interfered cell (61) of the sub-areas (60), and for each pixel in the overlap area (64).

consider claim 17. System according to claim 14, characterized in that it comprises remote control means for controlling the power in at least one interfering cell (61) causing the greatest disturbance, by modification of the radiation diagram of an adaptive antenna of the said interfering cell (61) (fig. 3 col. 6 lines: 20-21, 24-27; Soliman et al. teaches the terrain or geographic area of service stored in the memory of the computer, hence, resolution and pixel areas, furthermore, network planning tool considers SNR of specific area chosen and calculations are made upon report of thresholds).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diego Herrera whose telephone number is (571) 272-0907. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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